

1993

Summary of Points made to the Workshop on Ecoregional Approaches to  
International Research for Sustainable Agriculture  
Puerto Rico, May 29th, 1993

I am writing this out as a slightly expanded and referenced note since much of what I said conflicts with conventional wisdom and with current and proposed directions, but is substantiated by recent research and field experience.

I appreciate the invitation to come and take part in this workshop. My remarks are offered in a positive and constructive spirit.

In sum, I shall argue as follows:

1. Realism: getting it right: that wherever an ecoregional approach is pursued, carefully sceptical agroecological historical analysis should precede the selection of areas defined as degraded
2. Directions and cost-effectiveness: that an ecoregional approach is liable to have high opportunity costs, implying as it does a shift upwards in hierarchies, entailing extra transaction costs and holding and drawing scientists away from people, farmers and farming systems
3. Paradigms and global gaps: that an ecoregional approach is liable to distract from two global gaps which the CG system should be filling if the second green revolution is to be achieved: approaches and methods for farmers to conduct their own farming systems analysis; and approaches and methods to enable scientists to change their behaviour.

1. Realism: getting it right

If an ecoregional approach is to be followed, may I urge care in the selection of areas in which to work, and especially in assessing whether degradation really has taken place or is taking place?. The common view, as expressed in the background document (page 2) is that:

"The human factors responsible for this degradation are becoming increasingly apparent. High rates of population growth destroy the land and our future capacity to respond to the world's needs"

To the contrary, there is accumulating evidence from meticulous research that in some, and perhaps many, environments, the reverse is the case: that more people can be a condition for less degradation and a more sustainable agriculture. For example:

- \* the ODI/University of Nairobi historical study of Machakos District in Kenya has found a fivefold increase in population associated with a shift from a highly degrading to a much more sustainable agriculture. (This is already documented in eleven reports from Overseas Development Institute, Regent's College, Inner Circle, Regent's Park, London NW1 4NS and will also soon be available in Mary Tiffen, Michael Mortimore and F.N.Gichuki More People, Less Erosion, John Wiley, Chichester. Some participants on May

29th stayed on and saw slides taken of the same sites in Machakos in 1937 and 1992 which show a dramatic change from erosion to sustainable agriculture).

- \* 15 months of archival, social anthropological, and geographical field research in the forest-savannah transition zone in Guinea just completed by Melissa Leach, James Fairhead and colleagues has shown that the universal belief of colonial and post-colonial travellers, administrators, botanists, foresters and other scientists, both foreign and Guinean, that this was an area of former forest where increasing human populations and their activities had led to decline in forest and a spread of savannah grassland, was not just unfounded, but the opposite of the truth. People in that area create forests around their settlements, and usually more people means more forest. (See Leach and Fairhead references. For further information, write to Melissa Leach, Institute of Development Studies, University of Sussex, Brighton BN1 9RE.)
- \* In Nepal, increased erosion in areas near the forest margins has been found to be not the result of increases in population and in cultivated area (the mutual association of which is a statistical artefact) but of depopulation and the collapse of terraces which can no longer be maintained for lack of people (Gill 1992; Tamang 1992).
- \* In Kakamega District in Kenya, it has been found through aerial transects and ground truthing that the density of trees varies with the density of population and with the smallness of landholdings (Bradley, Chavangi and van Gelder 1985).

There is a practical lesson for any ecoregional approach which includes degradation among its criteria for selecting areas in which to work within ecoregions. It is not to accept at face value the commonly held views of administrators and professionals, including the view that more people means more degradation. It is, rather, to precede selection with careful and sceptical agroecological historical analysis, trying to get close to the reality, distinguishing different sets and sequences of conditions and locating the present in a historical process, and being open to counter intuitive insights.

## 2. Directions and Cost-effectiveness

The background document indicates that with an ecoregional approach, attention is liable to shift upwards away from farming people and the farm level:

i. language. Words used in the past to refer to relations between farmers and between scientists are now being used to refer to relations between IARCs and NARSs: equity is less between rich and poor farmers, and more between IARCs and NARS in the allocation of funds (as Lori Ann Thrupp pointed out, there is no mention of poverty or hunger); partnership is not between farmers and scientists but between IARCs and NARSs; and the clients in a "client-driven research agenda" are it seems, not farmers but the NARSs. The centre of gravity of the use of these words has moved upwards, away from poor people and farmers, to be applied more to scientists, organisations and programmes.

ii. physical bias. Ecoregions are defined physically, and have physical and biological rather than human and political boundaries.

iii. level of focus. The level of analysis has shifted upwards in the systems hierarchy from the farm-level microenvironment, the farm, the person, the household (and differentiation by gender, wealth and livelihood strategies) to the higher level of the community, the watershed and the region.

iv. coordination. This ominous word appears intermittently. If I heard him right, Peter Matlon spoke of "grossly inefficient coordination in the CG"; but at the same time Dr Rajagopalan this morning spoke of the need, with an ecoregional approach, for "an unprecedented level of collaboration". Putting these two observations together suggests that rather a lot has to be done. And there is the sobering hypothesis (validated by some FAO work) that the chances of a report being implemented vary inversely with the frequency with which the word coordination has to be used. Coordination has transaction costs, and all seem to agree that these would be high with an ecoregional approach; and the more meetings, telephone calls, letters, negotiations, and collaborations there have to be, the longer action takes, the more it costs, and the less time and attention are left over for field exposure and realities, let alone the participation and empowerment of farmers. Coordination and negotiation trap scientists in offices, meetings and workshops, and isolate and insulate them in central places, far from farmers and farm-level realities.

v. models and the missing farmer. The more attention is paid to GIS, dynamic modelling and the like, the less time, resources and inclination there are for learning from and with farmers. I am open to correction, but among Peter Matlon's eight principles, I did not see farmers' participation. What is happening to the CFR? (The computer:farmer ratio - the ratio of scientists' time spent in the company of computers to that spent in the company of farmers). If (page 8 para 3) it is a goal of truly international importance to develop a research model which embraces the physical, biological and human dimensions of long-term sustainability, is there any way this can be done other than with and by farmers?

vi. top-down thinking is strong. "Understanding how the community and national level systems impinge on household decision making is a prerequisite to understanding farmers' current priorities..." (my emphasis) starts higher up and descends towards farmers, rather than starting with farmers' realities; and the four criteria for evaluating ideas for solutions and for research on improved solutions (page 11) do not include farmers' priorities. When participatory methods are mentioned (page 11) it is "to bring the ownership of the research and development process to the local community" not for farmers to own it and influence it from the start, as proposed in his remarks by Ambassador Blake.

Any approach has to be at the cost of other approaches. Is the ecoregional approach liable (as some have suggested) to be costly, scientist-intensive, risky, and slow to produce results? If the long-term benefits are high compared with alternatives, this could still make sense. But by drawing scientific attention upwards, away from farm-level realities, it is in danger

of perpetuating and accentuating the neglect of two glaring global gaps which, in contrast, promise benefits which are cheap, scientist-sparing, reasonably assured, and quick to produce results.

### 3. Paradigms and Global Gaps

All, or almost all, subscribe verbally to the idea that the second green revolution demands a new research paradigm. The first green revolution centralised, standardised, and simplified, controlling the environment to fit the genotype. The second green revolution has to reverse this through decentralisation, diversity and complexity in farming systems and research, searching for and supplying a wider range of genotypes, principles and practices for farmers to fit to their varied local and personal conditions. For the second green revolution, farmers' knowledge, experience, analysis, priorities and choices are the new crucial element. The key then is for scientists to get closer to farmers, and enable farmers to express their knowledge and to conduct and share their own analysis.

If this is so, is the shift upwards and away from farmers in the ecoregional approach in danger of delaying and diminishing the second green revolution? Whatever else, it is liable to distract attention from two global gaps, the significance and potential of which have become more evident through developments in the past four years, and especially in the past few months. These are also areas where there is currently rapid innovation and change, still largely unnoticed by scientists insulated in large research organisations. They are easy to overlook, because they are often dispersed and undervalued, often conducted by people with other pressing commitments, and often communicated only informally.

As the background paper reiterates, the CG system exists to fill global gaps. I wish to ask the Directors General and the donors who are here whether they agree that the following two gaps exist, are vital for the second green revolution, and should be filled; and if so, what they are doing about it.

The two global gaps are:

#### i. approaches and methods for farmers to conduct their own analysis

The experience with participatory rural appraisal (PRA) (see sources below) is that farmers - women and men, whether literate or not literate - have a far greater capability to map, model, draw causal and linkage diagrams, rank, score, observe, analyse, plan, experiment, monitor and evaluate than professionals have recognised. In the past four years, a whole repertoire of approaches and methods has come together and been evolved to enable farmers better to use these capabilities. Despite their power and popularity, these approaches and methods still remain little known, and much scope for innovation remains. Some of the work at CIAT, ICLARM and CIP has contributed to these methods and to PRA, and the video "Participatory Research by Women Farmers" (which began as a personal initiative by an ICRISAT ecologist/entomologist) shows what can and should be done with PRA approaches and methods. Overall, though, most of the rapid development of PRA and similar participatory approaches has occurred independently of the CG system.

The small though valuable proportion which has occurred in the CG centres has tended to be the work of isolated individuals, or small low status groups, who have sometimes half-hidden their work from their colleagues in self-defence.

The evidence so far indicates that the use of PRA approaches and methods usually leads to new research priorities, fitting them closer to farmers' preferences. To take one example, following training in the use of PRA approaches and methods (Paliniswamy et al 1992; Vijayraghavan et al 1992), scientists at the Tamil Nadu Agricultural University are reported to have found that farmers prefer red to white rice; and this has led to a change in rice research priorities (Manoharan et al 1993). If methods like matrix scoring could only be used and used well worldwide, the outcome could, in quite a short time, be a focussing of research on farmers' real priorities to replace those imagined for them. And this focussing of priorities would mean more cost-effective research and could be a key pre-condition for a second green revolution. If so, then the cost of not developing and spreading these methods is likely to be enormous.

As with other global gaps, has not the CG system a major responsibility here? How much is it doing? How much does it plan to do? In detail:

- \* How many IARCs are pioneering these methods?
- \* How many staff, and what resources, are devoted to them?
- \* How much priority and recognition is given to those who innovate?
- \* How many IARCs include PRA approaches and methods in their courses for national scientists and what else are they doing to promote and spread them?

ii. approaches and methods to enable scientists to change their behaviour

A second major finding of the PRA experience is that "our" failure to discover the analytical capabilities of farmers results from our behaviour when we interact with them - lecturing, criticising, interrupting, wagging our fingers, holding the stick, asking many questions, and making suggestions, instead of sitting down, listening, learning, facilitating, enabling, and keeping our mouths shut. If we are to enable farmers to conduct their own analysis and share the results with us, we have to change our behaviour.

Methods and approaches to help professionals change are underdeveloped. Promising starts have been made (including the CIAT IPRA work), but most training of scientists and extensionists neglects personal behaviour and interaction. This is, and remains, a global gap.

Has not the CG system a major role here?

- \* How many IARCs are pioneering ways of helping professionals change their behaviour?
- \* How many staff, and what resources, are devoted this?
- \* How much priority and recognition is given to those who innovate?
- \* How many IARCs include changes in behaviour with farmers in their courses for national scientists, and what else are they doing to promote and spread them?

These two global gaps cry out to be filled. It is perhaps not often that there is such a clear opportunity for improving the cost-effectiveness and relevance of research. And they are coming to be recognised at precisely the time when we are searching and groping for ways to achieve the second green revolution. PRA approaches and methods are also relatively low cost, scientist-sparing, and low risk, and they have early payoffs. But they do not yet fit the normal professional paradigm. My question to all DGs, to the CG Secretariat, to TAC, and to all donors is: has the CG system, have the Centres, the vision to recognise these gaps, and the will and ability to seize the opportunity they present?

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## References

- Bradley, P., Chavangi, N., and Van Gelder, A., 1985, 'Development Research and Energy Planning in Kenya, Ambio, 14 (4-5): 228-236
- Fairhead, James and Melissa Leach, with Dominique Millimouno and Marie Kamano, 1992, 'Forests of the Past? Archival, Oral and Demographic Evidence in Kissidougou Prefecture's Vegetation History', Working Paper 1, Connaissance et Organisation Locales Agro-ecologiques, BP 4100, Conakry, Guinea, October\*
- Gill, Gerard J., 1993, O.K., The Data's Lousy, But Its All We've Got (Being a Critique of Conventional Methods), Gatekeeper Series No, 38, IIED, London
- IIED, 1989- RRA Notes 1-17 continuing, International Institute for Environment and Development, 3 Endsleigh Street, London WC1H 0DD
- Leach, Melissa and James Fairhead, 1992, 'Whose Social Forestry and Why? People, Trees and Managed Continuity in Guinea's Forest-Savannah Mosaic', Connaissance et Organisation Locales Agro-ecologiques, BP 4100, Conakry, Guinea, November\*
- Manoharan, M., K. Velayudham and N. Shunmugavalli, 1993, 'PRA: An Approach to Find Felt Needs of Crop Varieties', RRA Notes 18, June: 66-68
- Palinistwamy, A., S.R. Subramanian, Jules N. Pretty and K.C. John (eds), 1992, Participatory Rural Appraisal for Agricultural Research at Paiyur, Tamil Nadu, Department of Agricultural Economics, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore, and IIED, 3 Endsleigh Street, London WC1H 0DD
- Tamang, Devika, 1993, Living in a Fragile Ecosystem: Indigenous Soil Management in the Hills of Nepal, Gatekeeper Series No 41, IIED, London
- Tiffen, Mary, Michael Mortimore and F.N.Gichuki, 1993, More People, Less Erosion, Wiley, Chichester
- Viyayraghavan, R., S.R. Subramanian, Jules N. Pretty, and K.C. John (eds) 1992, Participatory Rural Appraisal for Agricultural Research at Aruppukottai, Tamil Nadu, Department of Agricultural Economics, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore, and IIED, 3 Endsleigh Street, London WC1H 0DD

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\* Probably available on request from Melissa Leach, IDS, University of Sussex, Brighton, BN1 9RE, UK.

Some Sources on Agriculture and Natural Resource-related PRA and on  
Scientists' Behaviour

(not including the farmer participatory research, soil and water conservation,  
or forestry literature)

Ashby, Jacqueline A., 1990, Evaluating Technology with Farmers: a Handbook,  
IPRA Projects, CIAT, A.A. 6713, Cali, Colombia

Chambers, Robert, 1992, Rural Appraisal: Rapid, Relaxed and Participatory, IDS  
Discussion Paper 311, Institute of Development Studies, University of Sussex,  
Brighton BN1 9RE, October

Chambers, Robert, 1993, 'Methods for Analysis by Farmers: the Professional  
Challenge', Journal for Farming Systems Research/Extension, Vol 4 No 1: 87-101

Cornwall, Andrea, Irene Guijt and Alice Welbourn, 1992, 'Acknowledging  
Process: Challenges for Agriculture Research and Extension Methodology',  
Overview Paper for the IIED/IDS Beyond Farmer First Workshops, 27-29 October  
1992

Drinkwater, Michael, 1993, 'Sorting Fact from Opinion: The Use of a Direct  
Matrix to Evaluate Finger Millet Varieties', RRA Notes 17: 24-28

Guijt, Irene and Jules N. Pretty, 1992, Participatory Rural Appraisal for  
Farmer Participatory Research in Punjab, Pakistan, Report of a Training  
Workshop, Pakistan-Swiss Potato Development Project, Sustainable Agriculture  
Programme, IIED, 3 Endsleigh Street, London WC1H 0DD

Lightfoot, Clive, Reg Noble and Regina Morales, 1991, Training Resource Book  
on a Participatory Method for Modelling Bioresource Flows, ICLARM, MC P.O.Box  
1501, Makati, Metro Manila, Philippines

Lightfoot, Clive, Shelley Feldman and M. Zainul Abedin, 1991, Households,  
Agroecosystems and Rural Resources Management, Bangladesh Agricultural  
Research Institute and ICLARM (also other ICLARM publications)

Lightfoot, Clive and Reg Noble, 1993, 'A Participatory Experiment in  
Sustainable Agriculture', Journal for Farming Systems Research/Extension, Vol  
4 No 1: 11-34

Lightfoot, Clive, P. Dalsgaard, M. Bimbao and F. Fermin, 1992, 'Farmer  
Participatory Procedures for Managing and Monitoring sustainable Farming  
systems', paper presented at the Second Asian Farming systems Symposium,  
BMICH, Colombo, 2 November

Neefjes, Koos, 1993, 'Examples of Participatory Rural Appraisal (PRA) in  
Wetland Development in Guinea Bissau', RRA Notes 17: 49-56



Pretty, Jules N. and Robert Chambers, 1993, Towards a Learning Paradigm: New Professionalism and Institutions for Agriculture, IDS Discussion Paper 334, Institute of Development Studies, University of Sussex, Brighton BN1 9RE, December

Quiros, Carlos Arturo, Teresa Gracia and Jacqueline A. Ashby, 1991, Farmer Evaluations of Technology: Methodology for Open-ended Evaluation, Instructional Unit No 1, CIAT, A.A. 6713, Cali, Colombia

Rhoades, Robert, 1992, The Art of the Informal Agricultural Survey, CIP. Apartado 5969, Lima, Peru

Rhoades, Robert, 1990, 'The Coming Revolution in Methods for Rural Development Research', User's Perspective Network (UPWARD), International Potato Center (CIP), P.O.Box 933, Manila, Philippines

Shanmugam, M., A. Palchamy, S. Jeeva, A. Kumar, K.C. John, Mr and Mrs Marappan, 1993, 'Measuring Agroecosystems Properties: Adaptation of Matrix Scoring Technique', RRA Notes 17: 19-23

For further lists of PRA literature, write to Helen McLaren, IDS, University of Sussex, Brighton BN1 9RE, UK.